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## PATENT ABSTRACTS OF JAPAN

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### (54) HAIR DYE COMPOSITION

#### (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a hair dye composition having excellent safety, color tone, dyeability and hair washing fastness.

**SOLUTION:** This hair dye composition having excellent safety and color tone and further having highly improved dyeability and hair washing fastness contains the following components A, B and C. (A) A compound selected from thioglycolic acid or its salt, dithioglycolic acid or its salt, thioglycolic acid monoglycerol ester and cysteamine. (B) A compound of the formula: R-OCH<sub>2</sub>CH<sub>2</sub> OCH<sub>2</sub>CH<sub>2</sub>OH (R is a 1-5C alkyl group). (C) A natural pigment or a basic dye.

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### CLAIMS

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#### [Claim(s)]

[Claim 1] The hair dye constituent containing the following components A, B, and C.

(A) Compound R-OCH<sub>2</sub>CH<sub>2</sub> OCH<sub>2</sub>CH<sub>2</sub>OH expressed with the compound (B) type (I) chosen from thioglycolic acid or its salt, dithio diglycolic acid or its salt, thioglycolic acid mono-glycerol ester, and cysteamine (I)

(R shows the alkyl group of carbon numbers 1-5 among a formula)

(C) Natural coloring matter or basic dye [claim 2] The hair dye constituent according

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to claim 1 whose compound expressed with a formula (I) is diethylene-glycol ethyl ether.

[Claim 3] The hair dye constituent according to claim 1 which furthermore contains aroma fatty alcohol.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the hair dye constituent equipped with high safety, a dye affinity, and shampoo robustness.

[0002]

[Description of the Prior Art] Hair dye is widely used as a coloring agent which attaches the variety of a color to hair positively, in order are not conspicuous and to carry out canities.

[0003] Generally hair dye is classified into hair dye by making the durability of the hair dyeing effectiveness, i.e., fastness, into a scale permanent hair dye, semipermanent hair dye, and temporarily.

[0004] By making the oxidation dye of an amine system or a phenol system permeate the interior of hair, and making an oxidizer (hydrogen peroxide) act simultaneously, the oxidation polymerization of the permanent hair dye is carried out, and it makes the coloring matter of a macromolecule form and carries out the deposition of the coloring matter to the interior of hair. Since the coloring matter of the macromolecule generated in hair cannot come from the interior of hair outside, the prolonged effect of hair dyeing is high.

[0005] Semipermanent hair dye makes acid dye etc. permeate the interior of hair, and is dyed by carrying out ionic bond of the sulfonic group to the amino group of hair protein. It is performed that the color with large molecular weight heightens the pass-through effect to the hair of a color using an organic solvent. The prolonged effect of the hair dyeing by semipermanent hair dye is about one month.

[0006] Moreover, by making a pigment or a color adhere to a hair front face physically, the hair dyeing of the hair dye is carried out, and it can be easily washed by shampoo temporarily.

[0007] Conventionally, oxidation hair dye, such as a p phenylenediamine, para-aminophenol, and resorcinol, is mainly used for permanent hair dye. Concomitant

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use of an oxidizer is indispensable to these oxidation hair dye, and peroxides, such as a hydrogen peroxide and a perboric acid salt, are used for it. Moreover, in conventional oxidation hair dye, in order to promote swelling of hair and disassembly of a peroxide, basic compounds, such as monoethanolamine, contain.

[0008] However, since these oxidation hair dye and a basic compound carried out embrittlement of the hair in order to cut the chemical bond of the cystine which has stimulative [ over the skin, an eye, and the scalp ], and constitutes hair, they had problems -- it is easy to become the cause of a hair damage.

[0009] Moreover, a dye affinity is inadequate, and remarkable decoloring is seen by the shampoo which is 1 time, and the conventional semipermanent hair dye using acid dye, basic dye, etc. causes a user's dissatisfaction, although the operation over hair or the skin is generally moderate as compared with oxidation hair dye.

[0010]

[Means for Solving the Problem] this invention person etc. reached [ that the hair dye constituent containing the following components A, B, and C is excellent in safety and a color tone, and a dye affinity and shampoo fastness are improved by leaps and bounds and ] a header and this invention, as a result of examining many things, in order to solve the aforementioned trouble.

[0011] That is, this invention is compound  $R-OCH_2CH_2OCH_2CH_2OH$  expressed with the compound (B) type (I) chosen from (A) thioglycolic acid or its salt, dithio diglycolic acid or its salt, thioglycolic acid mono-glycerol ester, and cysteamine. (I)

(R shows the alkyl group of carbon numbers 1-5 among a formula)

(C) Natural coloring matter or basic dye [0012]

[Embodiment of the Invention] Below, the hair dye constituent of this invention is explained further at a detail. As a salt of the thioglycolic acid of A component or dithio diglycolic acid used for the hair dye constituent of this invention, ammonium salt, a monoethanolamine salt, sodium salt, etc. can be used. Moreover, A component may be used independently, or may use two or more sorts together, and can blend 5 - 40 % of the weight preferably 0.05 to 50% of the weight into the hair dye constituent of this invention.

[0013] As diethylene-glycol alkyl ether shown by said formula (I) of B component, although - methyl ether, - ethyl ether, - propyl ether, - butyl ether, - pentyl ether, etc. are mentioned, - ethyl ether, - propyl ether, and - butyl ether are desirable especially. These diethylene-glycol alkyl ether is preferably blended ten to 60% of the weight 0.1 to 60% of the weight into the hair dye constituent of this invention.

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[0014] this invention -- setting -- as B component -- aroma fatty alcohol -- benzyl alcohol can also be preferably used together. Benzyl alcohol can be blended 0.1 to 30% of the weight into the hair dye constituent of this invention.

[0015] As coloring matter of C component, natural coloring matter or basic dye is used. The color tone of basic dye is clear and it can mention Basic Red 76 (C. I.12245), Basic Brown 16 (C. I.12550), Basic Brown 17 (C. I.12251), Basic Yellow 57 (C. I.12719), Basic Violet 10 (C. I.45170), Basic Blue 99 (C. I.56059), etc. moreover -- although many things of natural coloring matter used for edible and makeup for many years are desirable from the point of safety and a color tone and the natural coloring matter by which adoption is carried out to cosmetics raw material criteria, cosmetics classification authorization criteria I-V, quasi-drugs raw material specification, Japanese Standards of Food Additives, etc. can be used -- inside -- ANATO coloring matter, curcmae rhizoma coloring matter, and a gardenia -- blue -- base, a paprika pigment, a lac color, copper chlorophyll, etc. can be mentioned.

[0016] These colors can blend 0.001 - 20% into the hair dye constituent of this invention, and may carry out the mixed activity of that the above-mentioned color is independent or the two sorts or more.

[0017] To the hair dye constituent of this invention, independent or two kinds or more are used for inorganic alkali chemicals or organic alkali chemicals out of an above-mentioned indispensable component, and it is desirable pH 6-10 and to use it, adjusting a hair dye constituent to especially 7-9. It is desirable to use the buffer solution shown especially in the following. For example, a citric acid/disodium hydrogenphosphate, A hydrochloric acid / barbitol sodium / sodium acetate, a hydrochloric acid or a maleic acid / tris hydroxy aminomethane, A potassium dihydrogenphosphate, sodium/potassium phosphate, or sodium, A hydrochloric acid, a potassium dihydrogenphosphate, or sodium/sodium tetraborate, A potassium dihydrogenphosphate, sodium/sodium hydroxide, or a potassium, A hydrochloric acid/collidine, a boric acid/sodium carbonate, or sodium tetraborate, A hydrochloric acid / aminomethyl propanediol, a glycine/sodium hydroxide, or a potassium, A hydrochloric acid/collidine, a boric acid/sodium carbonate, or sodium tetraborate, A hydrochloric acid / aminomethyl propanediol, a glycine/sodium hydroxide, or a potassium, The combination of \*\*, such as a boric acid/sodium hydroxide, a hydrochloric acid / dimethyl glycine sodium, a sodium hydrogencarbonate/sodium carbonate, sodium tetraborate/sodium hydroxide, a sodium hydrogencarbonate/sodium hydroxide, or water-soluble ammonium salt / ammonia, is mentioned. Moreover, as a thing desirable

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[ among these ], alkali chemicals cannot remain easily on hair, the skin, etc., and \*\*, such as ammonium bicarbonate and an ammonium carbonate with few hair breakages or skin stimuli, ammonia, a glycine, an arginine, and a lysine, are mentioned.

Furthermore, these buffers can be used combining one sort or two sorts or more.

[0018] Furthermore, in the range which does not bar the effectiveness of this invention, addition combination of other components can be carried out at the hair dye constituent of this invention. As other components, alkali chemicals [ , such as basic-amino-acid; caustic alkali of sodium, ], such as inorganic-acid; ethylenediamine, Monod, G or triethanolamines, such as organic-acid; hydrochloric acids, such as aluminium compound; citric acids, such as surface-active-agent; urea; silicone; aluminum stearate of higher-alcohol; cationicity, anionic, or both sexes and an alum, and a malic acid, a morpholine, an arginine, and a lysine, the charge of hair growing, antimicrobial agent, perfume, etc. are mentioned, for example.

[0019] Moreover, the hair dye constituent of this invention is applicable to the usual liquefied or various pharmaceutical forms, such as hair dyeing hairdressing agents, such as a style mousse, gel, etc. which added the hairdressing component besides cream-like hair dye. As the application approach of the hair dye constituent of this invention, there is especially no limit, for example, it uses a hair dye constituent for hair, and after carrying out fixed time amount neglect, it has the approach of flushing the above-mentioned constituent adhering to hair with water, or the approach of using a hair dyeing hairdressing agent constituent for hair directly.

[0020] moreover, application of a hair dye constituent -- facing -- warming -- improvement in much more dye affinity and shampoo robustness is found by processing. warming -- the approach using a usual steamer, usual infrared lamp or far-infrared lamp, etc. as an art can be illustrated. warming -- although temperature and time amount have the advantageous processing in an elevated temperature, when breakage on the hair by heating is taken into consideration to the healthy hair which changes with the pharmaceutical forms of extent of breakage on hair, the class of buffer, pH, and a hair dye constituent, and has carried out neither Parma, nor a hair dye, bleach, etc., for 40-80 degrees C is desirable.

[0021]

[Example] The hair dye constituent shown in the following table 1 was prepared, and after having dipped the white hair-bundle (about 1g) of the yak decolorized in the prepared hair dyeing liquid, having pulled up after 1 minute, placing on the glass plate and heating for 15 minutes in a 40-degree C thermostat, it was left for 2 - 3 minutes in

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the ejection room temperature. Then, the hair dye which has adhered with the following shampoo liquid was flushed, and was inserted into the dry towel, and it dried. Viewing estimated the dye affinity, and fastness repeated and evaluated the shampoo.

(Shampoo liquid)

Lauryl polyoxyethylene sulfate sodium salt (30% water solution) 30% Lauryl sulfate sodium salt (30% water solution) 10% Palm-oil-fatty-acid diethanolamide 4% Glycerol 1% Water 55% [0022]

[A table 1]

染色性評価

組成および評価		実施例 1	実施例 2	実施例 3	実施例 4	実施例 5
染毛剤	チオグリコール 酸アミノム (50%水溶液)	1 3	1 3	1 3	1 3	1 3
	25%アミノ酸水	3	3	3	3	3
	ジエチレンジグリコール エチルエーテル	1 0	5	1 0	1 0	1 0
	ベンジルアルコール	0	5	0	0	0
	天然色素	ラック 色素 0. 3	ラック 色素 0. 3	アト-色素 0. 3	クサシ青色 素 0. 5	銅クロフィル 0. 2
染毛液		水で全体を 1 0 0 とする				
染色性	色 調	濃い 小豆色	濃い 小豆色	濃い黄色	青色	鮮明な 緑色
	堅牢度	シャンプー 2回	○	○	○	○
		シャンプー 3回	○	○	△	○
	評 価	○	○	○	○	○

色調の評価基準：○極めて良い。○良い。△不十分。

堅牢度の評価基準：○極めて良い。○良い。△不十分。×色が落ちる。

[0023] As a result of evaluating a dye affinity similarly, also in basic dye, it colored vividly and fastness was also excellent.